

RECEIVED

Submit 1 Copy To Appropriate District Office  
District I - (575) 393-6161  
1625 N. French Dr., Hobbs, NM 88240  
District II - (575) 748-1283  
811 S. First St., Artesia, NM 88210  
District III - (505) 334-6178  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV - (505) 476-3460  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources

Form C-103  
Revised July 18, 2013

OIL CONSERVATION DISTRICT ARTESIA O.G.D.  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

WELL API NO. 30-015-46134
5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name HADES 2 TBC STATE COM
8. Well Number 1H
9. OGRID Number 372098
10. Pool name or Wildcat CULEBRA BLUFF; BONE SPRING, SOUTH

**SUNDRY NOTICES AND REPORTS ON WELLS**  
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well  Gas Well  Other

2. Name of Operator  
Marathon Oil Permian LLC

3. Address of Operator  
5555 San Felipe St., Houston, TX 77056

4. Well Location  
Unit Letter A : 521 feet from the NORTH line and 1040 feet from the EAST line  
Section 2 Township 23S Range 28E NMPM County EDDY

11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
3068' GR

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

<b>NOTICE OF INTENTION TO:</b>		<b>SUBSEQUENT REPORT OF:</b>	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input checked="" type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	P AND A <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL. <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>	
DOWNHOLE COMMINGLE <input type="checkbox"/>			
CLOSED-LOOP SYSTEM <input type="checkbox"/>			
OTHER: <input type="checkbox"/>		OTHER: <input type="checkbox"/>	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Marathon Oil Permian LLC requests to make the following changes to the approved APD.

-Change well name from Hades 2 TBC State Com 1H to Hades 2 SB State Com 5H

-Change SHL  
From 521' FNL 1040' FEL ✓  
To 521' FNL 1070' FEL

325766

-Change proposed casing and cement program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sack of Cement	TOC
Surf	17 1/2	13 3/8	54.5	450	470	0
Int1	12 1/4	9 5/8	36	2550	503	0
Prod	8 3/4	5 1/2	17	13437	2382	2250

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE \_\_\_\_\_ TITLE CTR - Technician HES DATE 11/12/2019

Type or print name Adrian Covarrubias E-mail address: acovarrubias@marathonoil.com PHONE: 713-296-3368

For State Use Only

APPROVED BY: Raymond R. Padany TITLE Geology 3rd DATE 11-18-19

Conditions of Approval (if any):

NOV 13 2019

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
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1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico **DISTRICT IV-ARTESIA O.C.D.**  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-015-46134</b>		<sup>2</sup> Pool Code <b>15011</b>		<sup>3</sup> Pool Name <b>CULEBRA BLUFF; BONE SPRING, SOUTH</b>	
<sup>4</sup> Property Code <b>325766</b>		<sup>5</sup> Property Name <b>HADES 2 SB STATE COM</b>			<sup>6</sup> Well Number <b>5H</b>
<sup>7</sup> OGRID No. <b>372098</b>		<sup>8</sup> Operator Name <b>MARATHON OIL PERMIAN LLC</b>			<sup>9</sup> Elevation <b>3070'</b>

<sup>10</sup> Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	2	23S	28E		521	NORTH	1070	EAST	EDDY

<sup>11</sup> Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	2	23S	28E		100	SOUTH	2310	EAST	EDDY

<sup>12</sup> Dedicated Acres <b>318.97</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

**<sup>17</sup> OPERATOR CERTIFICATION**  
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

**11/11/2019**

Signature: *[Signature]* Date: \_\_\_\_\_  
**MELISSA SZUDERA**  
Printed Name  
E-mail Address: \_\_\_\_\_

**<sup>18</sup> SURVEYOR CERTIFICATION**  
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

NOVEMBER 5, 2019  
Date of Survey  
Signature and Seal of Professional Surveyor: *[Signature]*

**DAVID W. MYERS**  
NEW MEXICO  
PROFESSIONAL SURVEYOR  
11403

Certificate Number  
DAVID W. MYERS 11403

**CORNER COORDINATES NAD 83, SPCS NM EAST**  
A - X: 629075.09' / Y: 488269.73'  
B - X: 629059.56' / Y: 482925.07'  
C - X: 626359.90' / Y: 482920.26'  
D - X: 626386.21' / Y: 485587.65'  
E - X: 626412.61' / Y: 488262.71'

**CORNER COORDINATES NAD 27, SPCS NM EAST**  
A - X: 587892.62' / Y: 488209.99'  
B - X: 587876.94' / Y: 482865.46'  
C - X: 585177.32' / Y: 482860.69'  
D - X: 585203.71' / Y: 485528.00'  
E - X: 585230.17' / Y: 488203.01'

**SURFACE HOLE LOCATION**  
521' FNL 1070' FEL, SECTION 2  
NAD 83, SPCS NM EAST  
X: 628003.93' / Y: 487746.09'  
LAT: 32.34057329N / LON: 104.05271168W  
NAD 27, SPCS NM EAST  
X: 586821.46' / Y: 487686.38'  
LAT: 32.34045243N / LON: 104.05221614W

**KICK OFF POINT / FIRST TAKE POINT**  
100' FNL 2310' FEL, SECTION 2  
NAD 83, SPCS NM EAST  
X: 626764.78' / Y: 488163.84'  
LAT: 32.34172992N / LON: 104.05672047W  
NAD 27, SPCS NM EAST  
X: 585582.33' / Y: 488103.93'  
LAT: 32.34160914N / LON: 104.05622474W

**LAST TAKE POINT/BOTTOM HOLE LOCATION**  
100' FSL 2310' FEL, SECTION 2  
NAD 83, SPCS NM EAST  
X: 626749.83' / Y: 483020.96'  
LAT: 32.32759369N / LON: 104.05681185W  
NAD 27, SPCS NM EAST  
X: 585567.25' / Y: 482961.37'  
LAT: 32.32747279N / LON: 104.05631663W

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99977221 Convergence: 00°07'02.70001"

*RWP 11-18-19*



**Marathon Oil Permian LLC**

RKB (Precision 601) 25' + GL(3068') @ 3093.00usft

3068.00

**Project: Eddy County, New Mexico (NAD27)**

**Site: Hades 2 SB State Com Pad (Grid)**

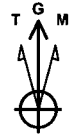
**Well: Hades 2 SB State Com 5H**

**Wellbore: Wellbore #1**

**Design: Plan 3**

**Rig:**

Map System: US State Plane 1927 (Exact solution)  
Datum: NAD 1927 (NADCON CONUS)  
Ellipsoid: Clarke 1866  
Zone Name: New Mexico East 3001

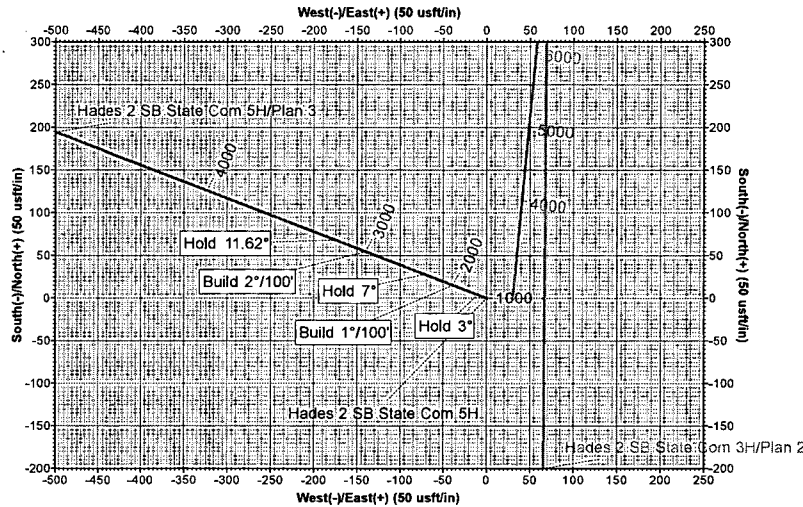
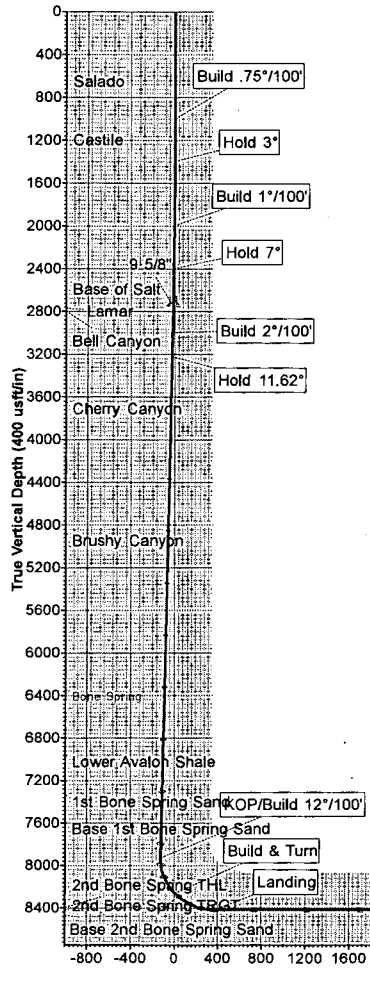


Azimuths to Grid North  
True North: -0.15°  
Magnetic North: 6.93°

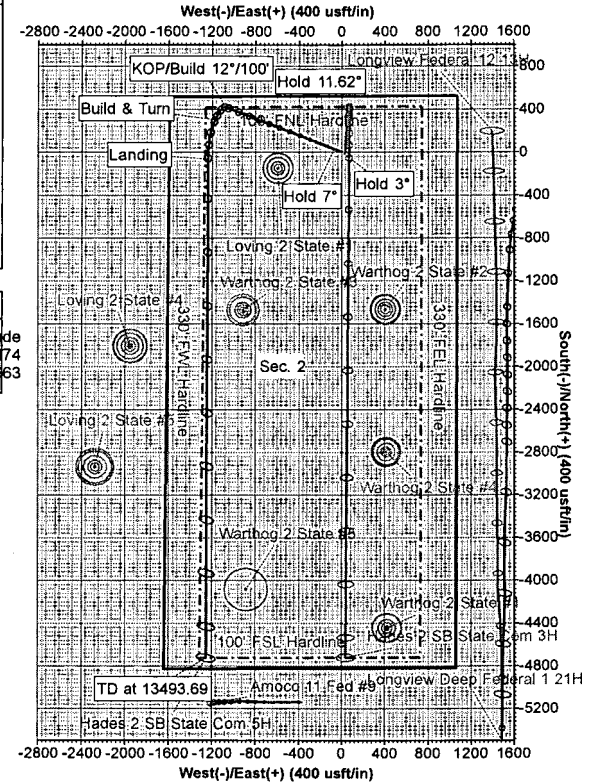
Magnetic Field  
Strength: 47882.1nT  
Dip Angle: 60.07°  
Date: 10/18/2019  
Model: HDGM\_2019-

WELL DETAILS									
3068.00									
	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude			
	0.00	0.00	487686.32	586821.45	32.34045228	-104.05221616			
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	Build .75°/100'
1400.00	3.00	291.25	1399.82	3.79	-9.76	0.75	291.25	-1.16	Hold 3°
2000.00	3.00	291.25	1998.99	15.18	-39.02	0.00	0.00	-4.66	Build 1°/100'
2400.00	7.00	291.25	2397.39	27.81	-71.51	1.00	0.00	-8.53	Hold 7°
3000.00	7.00	291.25	2992.92	54.31	-139.66	0.00	0.00	-16.66	Build 2°/100'
3231.00	11.62	291.25	3220.82	67.85	-174.48	2.00	0.00	-20.82	Hold 11.62°
8033.89	11.62	291.25	7925.27	418.47	-1076.10	0.00	0.00	-128.38	KOP/Build 12°/100'
8412.37	45.00	205.00	8262.28	305.01	-1173.32	12.00	-97.84	6.23	Build & Turn
8829.70	90.00	180.17	8420.00	-60.98	-1240.63	12.00	-33.20	377.23	Landing
13493.69	90.00	180.17	8420.00	-4724.95	-1254.20	0.00	0.00	4888.58	TD at 13493.69

DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
5H KOP/FTP (100' FNL - 1002' FEL)	417.61	-1239.12	488103.93	585582.33	32.34160913	-104.05622474
5H LTP/BHL (100' FSL - 1019' FEL)	-4724.95	-1254.20	482961.37	585567.25	32.32747278	-104.05631663



**Target Line**  
**8420' TVD @ 0° VS 90°**



**HALLIBURTON** | Sperry Drilling

# Marathon Oil Permian LLC

Eddy County, New Mexico (NAD27) Hades 2 SB State Com Pad (Grid)

API#

**Hades 2 SB State Com 5H**

SHL: (521' FNL - 1070' FEL)

Wellbore #1

Plan: Plan 3

## Sperry Drilling Services

### Combo Report

01 November, 2019

Well Coordinates: 32.34045228  
-104.05221617

NAD 1927 (NADCON CONUS)  
New Mexico East 3001  
487,686.32 N  
586,821.45 E

Ground Level: 3,068.00 usft

Local Coordinate Origin:

Centered on Well Hades 2 SB State Com 5H

Viewing Datum:

RKB (Precision 601) 25' + GL(3068') @ 3093.00usft

TVDs to System:

N

**North Reference:**

**Grid**

Unit System:

Midcon (2 decimal)

Version: 5000.15 Build: 91

Report Version: Midcon Combo v1.14

**HALLIBURTON**

**HALLIBURTON**

**Plan Report for Hades 2 SB State Com 5H - Plan 3**

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
0.00	0.00	0.00	0.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
592.00	0.00	0.00	592.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	Salado
600.00	0.00	0.00	600.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00 N	0.00 E	487,686.32	586,821.45	0.00	0.00	0.00	Build 75°/100'
1,100.00	0.75	291.25	1,100.00	0.24 N	0.61 W	487,686.56	586,820.84	0.75	-0.07	291.25	
1,138.01	1.04	291.25	1,138.00	0.45 N	1.16 W	487,686.77	586,820.29	0.75	-0.14	0.00	Castile
1,200.00	1.50	291.25	1,199.98	0.95 N	2.44 W	487,687.27	586,819.01	0.75	-0.29	0.00	
1,300.00	2.25	291.25	1,299.92	2.13 N	5.49 W	487,688.45	586,815.96	0.75	-0.65	0.00	
1,400.00	3.00	291.25	1,399.82	3.79 N	9.76 W	487,690.11	586,811.69	0.75	-1.16	0.00	Hold 3°
1,500.00	3.00	291.25	1,499.68	5.69 N	14.64 W	487,692.01	586,806.81	0.00	-1.75	0.00	
1,600.00	3.00	291.25	1,599.54	7.59 N	19.51 W	487,693.91	586,801.94	0.00	-2.33	0.00	
1,700.00	3.00	291.25	1,699.41	9.49 N	24.39 W	487,695.81	586,797.06	0.00	-2.91	0.00	
1,800.00	3.00	291.25	1,799.27	11.38 N	29.27 W	487,697.70	586,792.18	0.00	-3.49	0.00	
1,900.00	3.00	291.25	1,899.13	13.28 N	34.15 W	487,699.60	586,787.30	0.00	-4.07	0.00	
2,000.00	3.00	291.25	1,998.99	15.18 N	39.02 W	487,701.50	586,782.43	0.00	-4.66	0.00	Build 1°/100'
2,100.00	4.00	291.25	2,098.81	17.39 N	44.71 W	487,703.71	586,776.74	1.00	-5.33	0.00	
2,200.00	5.00	291.25	2,198.50	20.23 N	52.03 W	487,706.55	586,769.42	1.00	-6.21	0.00	
2,300.00	6.00	291.25	2,298.04	23.71 N	60.96 W	487,710.03	586,760.49	1.00	-7.27	0.00	
2,400.00	7.00	291.25	2,397.39	27.81 N	71.51 W	487,714.13	586,749.94	1.00	-8.53	0.00	Hold 7°
2,500.00	7.00	291.25	2,496.65	32.23 N	82.87 W	487,718.55	586,738.58	0.00	-9.89	0.00	
2,536.63	7.00	291.25	2,533.00	33.84 N	87.03 W	487,720.16	586,734.42	0.00	-10.38	0.00	Base of Salt
2,600.00	7.00	291.25	2,595.90	36.64 N	94.23 W	487,722.96	586,727.22	0.00	-11.24	0.00	
2,700.00	7.00	291.25	2,695.16	41.06 N	105.58 W	487,727.38	586,715.87	0.00	-12.60	0.00	
2,755.26	7.00	291.25	2,750.00	43.50 N	111.86 W	487,729.82	586,709.59	0.00	-13.35	0.00	9 5/8"
2,774.40	7.00	291.25	2,769.00	44.35 N	114.03 W	487,730.67	586,707.42	0.00	-13.60	0.00	Lamar
2,800.00	7.00	291.25	2,794.41	45.48 N	116.94 W	487,731.80	586,704.51	0.00	-13.95	0.00	
2,802.61	7.00	291.25	2,797.00	45.59 N	117.24 W	487,731.91	586,704.21	0.00	-13.99	0.00	Bell Canyon
2,900.00	7.00	291.25	2,893.67	49.89 N	128.30 W	487,736.21	586,693.15	0.00	-15.31	0.00	

## Plan Report for Hades 2 SB State Com 5H - Plan 3

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
3,000.00	7.00	291.25	2,992.92	54.31 N	139.66 W	487,740.63	586,681.79	0.00	-16.66	0.00	Build 2°/100'
3,100.00	9.00	291.25	3,091.94	59.35 N	152.63 W	487,745.67	586,668.82	2.00	-18.21	0.00	
3,200.00	11.00	291.25	3,190.42	65.65 N	168.81 W	487,751.97	586,652.64	2.00	-20.14	0.00	
3,231.00	11.62	291.25	3,220.82	67.85 N	174.48 W	487,754.17	586,646.97	2.00	-20.82	0.00	Hold 11.62°
3,300.00	11.62	291.25	3,288.40	72.89 N	187.43 W	487,759.21	586,634.02	0.00	-22.36	0.00	
3,400.00	11.62	291.25	3,386.35	80.19 N	206.20 W	487,766.51	586,615.25	0.00	-24.60	0.00	
3,500.00	11.62	291.25	3,484.30	87.49 N	224.98 W	487,773.81	586,596.47	0.00	-26.84	0.00	
3,600.00	11.62	291.25	3,582.25	94.79 N	243.75 W	487,781.11	586,577.70	0.00	-29.08	0.00	
3,671.21	11.62	291.25	3,652.00	99.99 N	257.12 W	487,786.31	586,564.33	0.00	-30.68	0.00	Cherry Canyon
3,700.00	11.62	291.25	3,680.20	102.09 N	262.52 W	487,788.41	586,558.93	0.00	-31.32	0.00	
3,800.00	11.62	291.25	3,778.15	109.39 N	281.29 W	487,795.71	586,540.16	0.00	-33.56	0.00	
3,900.00	11.62	291.25	3,876.10	116.69 N	300.07 W	487,803.01	586,521.38	0.00	-35.80	0.00	
4,000.00	11.62	291.25	3,974.05	123.99 N	318.84 W	487,810.31	586,502.61	0.00	-38.04	0.00	
4,100.00	11.62	291.25	4,072.00	131.29 N	337.61 W	487,817.61	586,483.84	0.00	-40.28	0.00	
4,200.00	11.62	291.25	4,169.96	138.59 N	356.38 W	487,824.91	586,465.07	0.00	-42.52	0.00	
4,300.00	11.62	291.25	4,267.91	145.89 N	375.16 W	487,832.21	586,446.29	0.00	-44.76	0.00	
4,400.00	11.62	291.25	4,365.86	153.19 N	393.93 W	487,839.51	586,427.52	0.00	-47.00	0.00	
4,500.00	11.62	291.25	4,463.81	160.49 N	412.70 W	487,846.81	586,408.75	0.00	-49.24	0.00	
4,600.00	11.62	291.25	4,561.76	167.79 N	431.47 W	487,854.11	586,389.98	0.00	-51.48	0.00	
4,700.00	11.62	291.25	4,659.71	175.09 N	450.25 W	487,861.41	586,371.20	0.00	-53.72	0.00	
4,800.00	11.62	291.25	4,757.66	182.39 N	469.02 W	487,868.71	586,352.43	0.00	-55.96	0.00	
4,900.00	11.62	291.25	4,855.61	189.69 N	487.79 W	487,876.01	586,333.66	0.00	-58.20	0.00	
4,932.05	11.62	291.25	4,887.00	192.03 N	493.81 W	487,878.35	586,327.64	0.00	-58.91	0.00	Brushy Canyon
5,000.00	11.62	291.25	4,953.56	196.99 N	506.56 W	487,883.31	586,314.89	0.00	-60.44	0.00	
5,100.00	11.62	291.25	5,051.51	204.29 N	525.34 W	487,890.61	586,296.11	0.00	-62.68	0.00	
5,200.00	11.62	291.25	5,149.46	211.59 N	544.11 W	487,897.91	586,277.34	0.00	-64.92	0.00	
5,300.00	11.62	291.25	5,247.41	218.89 N	562.88 W	487,905.21	586,258.57	0.00	-67.15	0.00	
5,400.00	11.62	291.25	5,345.36	226.19 N	581.65 W	487,912.51	586,239.80	0.00	-69.39	0.00	
5,500.00	11.62	291.25	5,443.31	233.49 N	600.43 W	487,919.81	586,221.02	0.00	-71.63	0.00	
5,600.00	11.62	291.25	5,541.26	240.79 N	619.20 W	487,927.11	586,202.25	0.00	-73.87	0.00	
5,700.00	11.62	291.25	5,639.21	248.09 N	637.97 W	487,934.41	586,183.48	0.00	-76.11	0.00	
5,800.00	11.62	291.25	5,737.16	255.39 N	656.74 W	487,941.71	586,164.71	0.00	-78.35	0.00	
5,900.00	11.62	291.25	5,835.11	262.69 N	675.52 W	487,949.01	586,145.93	0.00	-80.59	0.00	
6,000.00	11.62	291.25	5,933.06	269.99 N	694.29 W	487,956.31	586,127.16	0.00	-82.83	0.00	
6,100.00	11.62	291.25	6,031.01	277.29 N	713.06 W	487,963.61	586,108.39	0.00	-85.07	0.00	
6,200.00	11.62	291.25	6,128.97	284.59 N	731.83 W	487,970.91	586,089.62	0.00	-87.31	0.00	
6,300.00	11.62	291.25	6,226.92	291.90 N	750.61 W	487,978.22	586,070.84	0.00	-89.55	0.00	

## Plan Report for Hades 2 SB State Com 5H - Plan 3

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
6,400.00	11.62	291.25	6,324.87	299.20 N	769.38 W	487,985.52	586,052.07	0.00	-91.79	0.00	
6,424.64	11.62	291.25	6,349.00	300.99 N	774.00 W	487,987.31	586,047.45	0.00	-92.34	0.00	Bone Spring
6,500.00	11.62	291.25	6,422.82	306.50 N	788.15 W	487,992.82	586,033.30	0.00	-94.03	0.00	
6,600.00	11.62	291.25	6,520.77	313.80 N	806.92 W	488,000.12	586,014.53	0.00	-96.27	0.00	
6,700.00	11.62	291.25	6,618.72	321.10 N	825.70 W	488,007.42	585,995.75	0.00	-98.51	0.00	
6,800.00	11.62	291.25	6,716.67	328.40 N	844.47 W	488,014.72	585,976.98	0.00	-100.75	0.00	
6,900.00	11.62	291.25	6,814.62	335.70 N	863.24 W	488,022.02	585,958.21	0.00	-102.99	0.00	
7,000.00	11.62	291.25	6,912.57	343.00 N	882.01 W	488,029.32	585,939.44	0.00	-105.23	0.00	
7,053.53	11.62	291.25	6,965.00	346.90 N	892.06 W	488,033.22	585,929.39	0.00	-106.43	0.00	Lower Avalon Shale
7,100.00	11.62	291.25	7,010.52	350.30 N	900.79 W	488,036.62	585,920.66	0.00	-107.47	0.00	
7,200.00	11.62	291.25	7,108.47	357.60 N	919.56 W	488,043.92	585,901.89	0.00	-109.71	0.00	
7,300.00	11.62	291.25	7,206.42	364.90 N	938.33 W	488,051.22	585,883.12	0.00	-111.95	0.00	
7,400.00	11.62	291.25	7,304.37	372.20 N	957.10 W	488,058.52	585,864.35	0.00	-114.19	0.00	
7,438.42	11.62	291.25	7,342.00	375.00 N	964.32 W	488,061.32	585,857.13	0.00	-115.05	0.00	1st Bone Spring Sand
7,500.00	11.62	291.25	7,402.32	379.50 N	975.88 W	488,065.82	585,845.57	0.00	-116.43	0.00	
7,600.00	11.62	291.25	7,500.27	386.80 N	994.65 W	488,073.12	585,826.80	0.00	-118.67	0.00	
7,697.73	11.62	291.25	7,596.00	393.93 N	1,013.00 W	488,080.25	585,808.45	0.00	-120.86	0.00	Base 1st Bone Spring Sand
7,700.00	11.62	291.25	7,598.22	394.10 N	1,013.42 W	488,080.42	585,808.03	0.00	-120.91	0.00	
7,800.00	11.62	291.25	7,696.17	401.40 N	1,032.19 W	488,087.72	585,789.26	0.00	-123.15	0.00	
7,900.00	11.62	291.25	7,794.12	408.70 N	1,050.97 W	488,095.02	585,770.48	0.00	-125.39	0.00	
8,000.00	11.62	291.25	7,892.07	416.00 N	1,069.74 W	488,102.32	585,751.71	0.00	-127.63	0.00	
8,033.89	11.62	291.25	7,925.27	418.47 N	1,076.10 W	488,104.79	585,745.35	0.00	-128.38	0.00	KOP/Build 12°/100'
8,050.00	11.51	281.61	7,941.05	419.38 N	1,079.19 W	488,105.70	585,742.26	12.00	-128.47	-97.84	
8,075.00	11.97	267.01	7,965.54	419.75 N	1,084.22 W	488,106.07	585,737.23	12.00	-127.54	-88.39	
8,100.00	13.11	254.19	7,989.94	418.84 N	1,089.54 W	488,105.16	585,731.91	12.00	-125.29	-74.09	
8,125.00	14.77	243.79	8,014.21	416.66 N	1,095.13 W	488,102.98	585,726.32	12.00	-121.75	-61.58	
8,150.00	16.80	235.65	8,038.27	413.21 N	1,100.98 W	488,099.53	585,720.47	12.00	-116.92	-51.48	
8,175.00	19.08	229.31	8,062.05	408.51 N	1,107.06 W	488,094.83	585,714.39	12.00	-110.81	-43.65	
8,200.00	21.54	224.32	8,085.50	402.56 N	1,113.37 W	488,088.88	585,708.08	12.00	-103.44	-37.61	
8,207.01	22.25	223.11	8,092.00	400.67 N	1,115.17 W	488,086.99	585,706.28	12.00	-101.16	-32.93	2nd Bone Spring Sand
8,225.00	24.11	220.32	8,108.54	395.38 N	1,119.88 W	488,081.70	585,701.57	12.00	-94.84	-31.81	
8,250.00	26.76	217.07	8,131.12	387.00 N	1,126.58 W	488,073.32	585,694.87	12.00	-85.01	-29.24	
8,275.00	29.48	214.36	8,153.17	377.43 N	1,133.44 W	488,063.75	585,688.01	12.00	-74.00	-26.30	
8,300.00	32.24	212.09	8,174.62	366.70 N	1,140.46 W	488,053.02	585,680.99	12.00	-61.83	-23.92	
8,325.00	35.04	210.13	8,195.44	354.84 N	1,147.61 W	488,041.16	585,673.84	12.00	-48.53	-21.96	
8,350.00	37.87	208.43	8,215.54	341.88 N	1,154.86 W	488,028.20	585,666.59	12.00	-34.15	-20.34	
8,375.00	40.71	206.94	8,234.89	327.86 N	1,162.21 W	488,014.18	585,659.24	12.00	-18.71	-18.97	

## HALLIBURTON

## Plan Report for Hades 2 SB State Com 5H - Plan 3

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
8,400.00	43.58	205.61	8,253.42	312.82 N	1,169.63 W	487,999.14	585,651.82	12.00	-2.27	-17.81	
8,412.37	45.00	205.00	8,262.28	305.01 N	1,173.32 W	487,991.33	585,648.13	12.00	6.23	-16.83	Build & Turn
8,425.00	46.27	203.85	8,271.11	296.79 N	1,177.06 W	487,983.11	585,644.39	12.00	15.13	-33.20	
8,450.00	48.83	201.72	8,287.98	279.78 N	1,184.19 W	487,966.10	585,637.26	12.00	33.40	-32.40	
8,475.00	51.42	199.74	8,304.01	261.84 N	1,190.98 W	487,948.16	585,630.47	12.00	52.48	-30.96	
8,500.00	54.04	197.91	8,319.15	243.01 N	1,197.39 W	487,929.33	585,624.06	12.00	72.32	-29.69	
8,525.00	56.68	196.19	8,333.36	223.35 N	1,203.41 W	487,909.67	585,618.04	12.00	92.87	-28.58	
8,550.00	59.35	194.58	8,346.60	202.90 N	1,209.03 W	487,889.22	585,612.42	12.00	114.08	-27.60	
8,575.00	62.04	193.05	8,358.84	181.73 N	1,214.23 W	487,868.05	585,607.22	12.00	135.87	-26.75	
8,600.00	64.75	191.59	8,370.03	159.90 N	1,219.00 W	487,846.22	585,602.45	12.00	158.20	-26.00	
8,625.00	67.46	190.20	8,380.16	137.46 N	1,223.32 W	487,823.78	585,598.13	12.00	181.00	-25.35	
8,650.00	70.19	188.87	8,389.19	114.47 N	1,227.18 W	487,800.79	585,594.27	12.00	204.21	-24.79	
8,668.02	72.16	187.93	8,395.00	97.60 N	1,229.67 W	487,783.92	585,591.78	12.00	221.15	-24.30	2nd Bone Spring THL
8,675.00	72.93	187.58	8,397.09	91.00 N	1,230.57 W	487,777.32	585,590.88	12.00	227.76	-24.00	
8,700.00	75.68	186.32	8,403.86	67.11 N	1,233.48 W	487,753.43	585,587.97	12.00	251.59	-23.89	
8,725.00	78.43	185.10	8,409.46	42.87 N	1,235.90 W	487,729.19	585,585.55	12.00	275.65	-23.55	
8,750.00	81.19	183.90	8,413.88	18.34 N	1,237.83 W	487,704.66	585,583.62	12.00	299.85	-23.28	
8,775.00	83.95	182.72	8,417.11	6.40 S	1,239.26 W	487,679.92	585,582.19	12.00	324.13	-23.07	
8,800.00	86.71	181.55	8,419.15	31.30 S	1,240.19 W	487,655.02	585,581.26	12.00	348.43	-22.92	
8,825.00	89.48	180.39	8,419.98	56.28 S	1,240.61 W	487,630.04	585,580.84	12.00	372.69	-22.82	
8,829.70	90.00	180.17	8,420.00	60.98 S	1,240.63 W	487,625.34	585,580.82	12.00	377.23	-22.78	Landing - 2nd Bone Spring TRGT
8,900.00	90.00	180.17	8,420.00	131.28 S	1,240.84 W	487,555.04	585,580.61	0.00	445.23	0.00	
9,000.00	90.00	180.17	8,420.00	231.28 S	1,241.13 W	487,455.04	585,580.32	0.00	541.96	0.00	
9,100.00	90.00	180.17	8,420.00	331.28 S	1,241.43 W	487,355.04	585,580.02	0.00	638.69	0.00	
9,200.00	90.00	180.17	8,420.00	431.28 S	1,241.72 W	487,255.04	585,579.73	0.00	735.42	0.00	
9,300.00	90.00	180.17	8,420.00	531.28 S	1,242.01 W	487,155.04	585,579.44	0.00	832.14	0.00	
9,400.00	90.00	180.17	8,420.00	631.28 S	1,242.30 W	487,055.04	585,579.15	0.00	928.87	0.00	
9,500.00	90.00	180.17	8,420.00	731.28 S	1,242.60 W	486,955.04	585,578.85	0.00	1,025.60	0.00	
9,600.00	90.00	180.17	8,420.00	831.28 S	1,242.89 W	486,855.04	585,578.56	0.00	1,122.33	0.00	
9,700.00	90.00	180.17	8,420.00	931.28 S	1,243.18 W	486,755.04	585,578.27	0.00	1,219.05	0.00	
9,800.00	90.00	180.17	8,420.00	1,031.28 S	1,243.48 W	486,655.04	585,577.97	0.00	1,315.78	0.00	
9,900.00	90.00	180.17	8,420.00	1,131.28 S	1,243.77 W	486,555.04	585,577.68	0.00	1,412.51	0.00	
10,000.00	90.00	180.17	8,420.00	1,231.28 S	1,244.06 W	486,455.04	585,577.39	0.00	1,509.24	0.00	
10,100.00	90.00	180.17	8,420.00	1,331.28 S	1,244.36 W	486,355.04	585,577.09	0.00	1,605.97	0.00	
10,200.00	90.00	180.17	8,420.00	1,431.28 S	1,244.65 W	486,255.04	585,576.80	0.00	1,702.69	0.00	
10,300.00	90.00	180.17	8,420.00	1,531.27 S	1,244.94 W	486,155.05	585,576.51	0.00	1,799.42	0.00	



HALLIBURTON

Plan Report for Hades 2 SB State Com 5H - Plan 3

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
10,400.00	90.00	180.17	8,420.00	1,631.27 S	1,245.24 W	486,055.05	585,576.21	0.00	1,896.15	0.00	
10,500.00	90.00	180.17	8,420.00	1,731.27 S	1,245.53 W	485,955.05	585,575.92	0.00	1,992.88	0.00	
10,600.00	90.00	180.17	8,420.00	1,831.27 S	1,245.82 W	485,855.05	585,575.63	0.00	2,089.60	0.00	
10,700.00	90.00	180.17	8,420.00	1,931.27 S	1,246.12 W	485,755.05	585,575.33	0.00	2,186.33	0.00	
10,800.00	90.00	180.17	8,420.00	2,031.27 S	1,246.41 W	485,655.05	585,575.04	0.00	2,283.06	0.00	
10,900.00	90.00	180.17	8,420.00	2,131.27 S	1,246.70 W	485,555.05	585,574.75	0.00	2,379.79	0.00	
11,000.00	90.00	180.17	8,420.00	2,231.27 S	1,247.00 W	485,455.05	585,574.45	0.00	2,476.51	0.00	
11,100.00	90.00	180.17	8,420.00	2,331.27 S	1,247.29 W	485,355.05	585,574.16	0.00	2,573.24	0.00	
11,200.00	90.00	180.17	8,420.00	2,431.27 S	1,247.58 W	485,255.05	585,573.87	0.00	2,669.97	0.00	
11,300.00	90.00	180.17	8,420.00	2,531.27 S	1,247.88 W	485,155.05	585,573.57	0.00	2,766.70	0.00	
11,400.00	90.00	180.17	8,420.00	2,631.27 S	1,248.17 W	485,055.05	585,573.28	0.00	2,863.43	0.00	
11,500.00	90.00	180.17	8,420.00	2,731.27 S	1,248.46 W	484,955.05	585,572.99	0.00	2,960.15	0.00	
11,600.00	90.00	180.17	8,420.00	2,831.27 S	1,248.76 W	484,855.05	585,572.69	0.00	3,056.88	0.00	
11,700.00	90.00	180.17	8,420.00	2,931.27 S	1,249.05 W	484,755.05	585,572.40	0.00	3,153.61	0.00	
11,800.00	90.00	180.17	8,420.00	3,031.27 S	1,249.34 W	484,655.05	585,572.11	0.00	3,250.34	0.00	
11,900.00	90.00	180.17	8,420.00	3,131.27 S	1,249.64 W	484,555.05	585,571.81	0.00	3,347.06	0.00	
12,000.00	90.00	180.17	8,420.00	3,231.27 S	1,249.93 W	484,455.05	585,571.52	0.00	3,443.79	0.00	
12,100.00	90.00	180.17	8,420.00	3,331.27 S	1,250.22 W	484,355.05	585,571.23	0.00	3,540.52	0.00	
12,200.00	90.00	180.17	8,420.00	3,431.27 S	1,250.51 W	484,255.05	585,570.94	0.00	3,637.25	0.00	
12,300.00	90.00	180.17	8,420.00	3,531.27 S	1,250.81 W	484,155.05	585,570.64	0.00	3,733.98	0.00	
12,400.00	90.00	180.17	8,420.00	3,631.27 S	1,251.10 W	484,055.05	585,570.35	0.00	3,830.70	0.00	
12,500.00	90.00	180.17	8,420.00	3,731.27 S	1,251.39 W	483,955.05	585,570.06	0.00	3,927.43	0.00	
12,600.00	90.00	180.17	8,420.00	3,831.26 S	1,251.69 W	483,855.06	585,569.76	0.00	4,024.16	0.00	
12,700.00	90.00	180.17	8,420.00	3,931.26 S	1,251.98 W	483,755.06	585,569.47	0.00	4,120.89	0.00	
12,800.00	90.00	180.17	8,420.00	4,031.26 S	1,252.27 W	483,655.06	585,569.18	0.00	4,217.61	0.00	
12,900.00	90.00	180.17	8,420.00	4,131.26 S	1,252.57 W	483,555.06	585,568.88	0.00	4,314.34	0.00	
13,000.00	90.00	180.17	8,420.00	4,231.26 S	1,252.86 W	483,455.06	585,568.59	0.00	4,411.07	0.00	
13,100.00	90.00	180.17	8,420.00	4,331.26 S	1,253.15 W	483,355.06	585,568.30	0.00	4,507.80	0.00	
13,200.00	90.00	180.17	8,420.00	4,431.26 S	1,253.45 W	483,255.06	585,568.00	0.00	4,604.52	0.00	
13,300.00	90.00	180.17	8,420.00	4,531.26 S	1,253.74 W	483,155.06	585,567.71	0.00	4,701.25	0.00	
13,400.00	90.00	180.17	8,420.00	4,631.26 S	1,254.03 W	483,055.06	585,567.42	0.00	4,797.98	0.00	
13,493.69	90.00	180.17	8,420.00	4,724.95 S	1,254.31 W	482,961.37	585,567.14	0.00	4,888.60	0.00	TD at 13493.69 - 5 1/2"

**Plan Report for Hades 2 SB State Com 5H - Plan 3**

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,000.00	1,000.00	0.00	0.00	Build .75°/100'
1,400.00	1,399.82	3.79	-9.76	Hold 3°
2,000.00	1,998.99	15.18	-39.02	Build 1°/100'
2,400.00	2,397.39	27.81	-71.51	Hold 7°
3,000.00	2,992.92	54.31	-139.66	Build 2°/100'
3,231.00	3,220.82	67.85	-174.48	Hold 11.62°
8,033.89	7,925.27	418.47	-1,076.10	KOP/Build 12°/100'
8,412.37	8,262.28	305.01	-1,173.32	Build & Turn
8,829.70	8,420.00	-60.98	-1,240.63	Landing
13,493.69	8,420.00	-4,724.95	-1,254.20	TD at 13493.69

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
TD	No Target (Freehand)	194.87	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	13,493.69	Plan 3	3_MWD

**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing	Hole
			Diameter (")	Diameter (")
2,755.26	2,750.00	9 5/8"	9-5/8	12-1/4
13,493.69	8,420.00	5 1/2"	5-1/2	8-3/4

## Plan Report for Hades 2 SB State Com 5H - Plan 3

### Formation Details

Measured Depth (usft)	Vertical Depth (usft)	TVDSS (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
592.00	592.00	-2,501.00	Salado			
1,138.01	1,138.00	-1,955.00	Castile			
2,536.63	2,533.00	-560.00	Base of Salt			
2,774.40	2,769.00	-324.00	Lamar			
2,802.61	2,797.00	-296.00	Bell Canyon			
3,671.21	3,652.00	559.00	Cherry Canyon			
4,932.05	4,887.00	1,794.00	Brushy Canyon			
6,424.64	6,349.00	3,256.00	Bone Spring			
7,053.53	6,965.00	3,872.00	Lower Avalon Shale			
7,438.42	7,342.00	4,249.00	1st Bone Spring Sand			
7,697.73	7,596.00	4,503.00	Base 1st Bone Spring Sand			
8,207.01	8,092.00	4,999.00	2nd Bone Spring Sand			
8,668.02	8,395.00	5,302.00	2nd Bone Spring THL			
8,829.70	8,420.00	5,327.00	2nd Bone Spring TRGT			

### Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
5H KOP/FTP (100' FNL - 1002' FEL) ()	0.00	0.00	8,386.00	417.61	-1,239.12	488,103.93	585,582.33	32.34160913	-104.05622474
- hit/miss target									
- Shape									
- Point									
- plan misses target center by 177.26usft at 8438.07usft MD (8280.03 TVD, 288.02 N, -1180.83 E)									

5H LTP/BHL (100' FSL - 1019' FEL) ()	0.00	0.00	8,386.00	-4,724.95	-1,254.20	482,961.37	585,567.25	32.32747278	-104.05631663
- hit/miss target									
- Shape									
- Point									
- plan misses target center by 34.00usft at 13493.69usft MD (8420.00 TVD, -4724.95 N, -1254.31 E)									

### Directional Difficulty Index

Average Dogleg over Survey:	0.79 °/100usft	Maximum Dogleg over Survey:	12.00 °/100usft at 8,412.37 usft
Net Tortosity applicable to Plans:	0.79 °/100usft	Directional Difficulty Index:	6.226

**Plan Report for Hades 2 SB State Com 5H - Plan 3**

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*Audit Info*

## North Reference Sheet for Hades 2 SB State Com Pad (Grid) - Hades 2 SB State Com 5H - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to RKB (Precision 601) 25' + GL(3068') @ 3093.00usft. Northing and Easting are relative to Hades 2 SB State Com 5H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 3001 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -104.33333333°, Longitude Origin:0.00000000°, Latitude Origin:0.00000000°

False Easting: 500,000.00usft, False Northing: 0.00usft, Scale Reduction: 0.99991772

Grid Coordinates of Well: 487,686.32 usft N, 586,821.45 usft E

Geographical Coordinates of Well: 32.34045228, -104.05221617

Grid Convergence at Surface is: 0.15°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,493.69usft

the Bottom Hole Displacement is 4,888.60usft in the Direction of 194.87° (Grid).

Magnetic Convergence at surface is: -6.93° (18 October 2019, , HDGM\_2019)

